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The Impact of Systems Thinking as a Construct of Organizational Learning on Competitive Advantage in Kenya's Oil Marketing Sector

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Abstract

Introduction: Systems thinking has emerged as the convergence point between sciences, a fundamental way of interpreting nature and mastering the ever increasing complexity of the products of human intelligence. **Objective:** This study aimed to determine the impact of systems thinking as a construct of organizational learning on competitive advantage in Kenya's Oil Marketing Sector. The latent aspects of competitive advantage; organization agility, innovation, barriers to entry, mass customization and inimitability (difficulty to duplicate) were investigated against the independent variable. **Methodology:** The research design was explanatory, non-contrived and cross-sectional study on Kenya's oil marketing sector. A sample size of 425 was drawn from oil marketing companies that had a market share above 1% according to the Petroleum Institute of East Africa. Structured questionnaires were used as the data collection tool. Correlation, regression and SEM model were used to analyze the study findings. **Findings:** The study found that systems thinking significantly predicted competitive advantage which indicated rejection of the null hypothesis.

Keywords: *Organizational Learning, Systems Thinking, Competitive Advantage, Oil Marketing Sector.*

1.0 INTRODUCTION

1.1 Background of the Study

Organizational agility and adaptability (source of competitive advantage) are necessarily global in nature, because if the competitive model experimentation succeeds, it will be communicated, selected, amplified, and refined all through the organization. Organizations therefore need to create environments that encourage the knowledge flow, diversity, autonomy, risk taking, sharing, and flexibility on which adaptation thrives. Contrary to classical strategic thinking, strategy follows organization in adaptive companies (Reeves & Deimler, 2016), hence the importance of systems thinking. Systems thinking is a discipline involved with seeing wholes, visualizing the big picture and is credited with enabling individuals see the interrelationships, cause and effect scenarios and relevant process patterns (Taggert, 2010). According to Senge (1993) Systems thinking refers to a framework for identifying patterns and inter-relationships, seeing the big picture, avoiding over-simplification, overcoming linear thinking and dealing with issues holistically and comprehensively. Senge's whole approach to organizations is a system's approach that views the organisation as a "living" entity, with its own behaviour and learning patterns.

Systems thinking is a method of critical thinking whereby people analyze the relationships between the system's parts in order to understand a situation for better decision-making (Grimsley, 2016). When used properly, systems thinking is the answer to forecasting the consequences of change, eradicating silo thinking, recognizing differing opinions, and staying focused on the goal while yielding significant payoffs like increased productivity, innovativeness, and agility (Glaser, 2015). For instance, the "why" that systems thinking explains is usually a set of non-obvious interdependencies between factors such as corresponding actions taken by the organization and

its effect on customers or competitors (Stroh, 2016). When appropriately executed, systems thinking is the solution to forecasting the consequences of change, eradicating silo thinking, acknowledging divergent viewpoints, and remaining focused on the goal. From innovation, mass customization, establishing positional advantage (entry barriers), organizational agility, inimitability to manifestation of productivity, the payoff of systems thinking is significant (Glaser, 2015).

Collopy (2009) has a divergent opinion regarding the efficacy of systems thinking where competitive advantage is concerned. Collopy agrees that systems thinking indeed shares many of the conceptual foundations of design thinking but has fallen short of its promise to be a powerful guide to management practice since it has never achieved the success its proponents hoped for. He further states that if systems thinking had been successful in gaining a foothold in management education over the last half of the 20th century, there would be no "manage-by-designing movement", or calls for integrative or design thinking. With these differing opinions, this study seeks to empirically establish the role of systems thinking, being a dimension of organizational learning, on competitive advantage. The organizational learning process is embedded in time and progressively takes place and naturally unfolds within the organization with the passage of time (Dyck, Starke, Mischke, & Mauws, 2005).

The importance of systems thinking cannot be underscored. It is a powerful way of cognitive deduction processes that is being revitalized in several economic fields in order to discover new answers to current challenges and to support a deeper understanding of business. As part of this revitalization, systems thinking is applied to business model innovation, as the process of business model innovation requires more than simply filling a business model schematic, it is a challenging and complex management task (Milligan, 2016). The value of systems thinking is that it also increases leaders' ability to observe, detect and analyze behavioural details in the activities of customers, suppliers, competitors and others to improve innovation and yield beneficial outcomes. It also improves capacity to account and plan for possible rebound effects; where gains are made in one area while there is fall back in others (Strandberg, 2016).

1.2 Problem Statement

Currently, the global business environment can be described as turbulent, as the changes take the form of radical and revolutionary processes that fundamentally change the economic reality. As a result, it produces a natural need to find new solutions that will enable organizations to achieve competitive advantage. Variability, complexity, and increasing risks are all characteristics of the modern world. The business environment is a system and therefore it comprises various elements related with each other. These relationships occur in different directions and with varying intensity resulting in continuous changes within the system (Kopczyński, 2012). To put emphasis on the interconnectedness of elements within the organization, Bersin (2016) stated that one of the single most important sources of competitive advantage is the organization's entire corporate learning strategy and not segments of it. Bersin established existance of systems and subsystems when he stated that the research found that some of the most important elements of "capability building" include creating a management culture which is open to mistakes, building trust, giving people time to reflect, and creating a value system around learning.

Companies that adopted certain practices in learning culture significantly outperform their peers in innovation, customer service, and profitability. Systems thinking is a preferred choice for fierce competitors, especially within the context of prevailing economic instability and flux (Seiler & Kowalsi, 2011) and organizational learning helps people to create and manage knowledge that collectively builds a system's intellectual capital (Lunenburg, 2011). By examining aspects of reality using a systems thinking approach, which focuses on the relationships among different parts of the system, organization members may improve their understanding of how their ways of perceptions and their methods of dealing with each other can create butterfly effects on the firm. This study sought to establish the relationship that systems thinking has with competitive advantage in Kenya's Oil Marketing sector and to dispel with the ambiguity in literature as to the hypothesized relationship.

1.3 Purpose

The general objective of this study was to determine the impact of systems thinking as a construct of organizational learning on competitive advantage in Kenya's Oil Marketing Sector.

1.4 Hypothesis

$H_{0:}$ Systems thinking has no significant relationship with competitive advantage

H_1: Systems thinking has a significant relationship with competitive advantage

2.0 LITERATURE REVIEW

Introduction

The concept behind systems thinking is that, upon examination of the interactions of the parts in a system, employees see larger patterns emerging. By seeing the patterns, employees can begin to understand how the system works. If the pattern is good for the organization, managers can make decisions that reinforce it; but if the pattern is bad for the organization, they can make decisions that change it (Grimsley, 2016). For example, strategies have to take into account many perspectives, i.e. issues within the firm and outside the firm, hard and soft facts etc. and once a new strategy is formulated it must be aligned with the company´s resource allocation process to make implementation possible. In order to evaluate its effectiveness a causal chain of performance measures are also required for purposes of monitoring and evaluation (Zahn, 2016). Zahn additionally stated that strategic thinking embraces systems thinking because the former is a process of discovering insights and synthesis, and results in an integrated perspective of all aspects of the organization. This explains why strategy changes usually necessitate a renewal of strategic consensus in the entire organization. According to Richmond (1994), systems thinking applied in strategy involves making reliable inferences about strategy changes as a set of beliefs concerning possible business developments and scenarios by developing an increasingly deep understanding of the interconnected aspects that form a strategy.

Systems thinkers in a true learning organization, come to understand the need to see the big picture and the pieces of interrelationships that make an organization whole. Goldsmith (2015) acknowledged that companies that effectively collect and absorb external and internal data and are able to turn it into usable knowledge will be better prepared to sense market opportunities before the competition. These are companies that have employees who are able to recognize relevant patterns and processes in the external and internal environment that are beneficial to mapping out strategies and effective action plans. An observation by Schulman et al. (2016) on end-to-end processes is that process excellence allows companies to have greater visibility into the performance of units and not just individuals. Further observation by Shulman et al., was that the outcome of process excellence is creating leading-edge capabilities that help people to do their jobs better, automatically improving efficiency and effectiveness and delivering other differentiated outcomes. For example, when the incentive management team understands what the sales team is trying to accomplish, both entities can work together to create a stronger capability that reduces rework, drives down costs and ultimately boosts competitive differentiation.

Systems thinking is developing the ability to decipher the big picture and understanding how changes in one area of the organization affect the system as a whole therefore establishing the overall recognition of the interdependence of, and interrelationships between the parts of the system and how to leverage and drive change throughout the system as a whole (Blackwood, 2014). This is indicative of achieving organizational learning. According to Grimsley (2016) systems thinking is a significant departure from the traditional way of making business decisions whereby managers would break the system into smaller parts and analyze them separately. Systems thinking also differs from traditional thinking in that it is a concerted effort at understanding how parts by themselves are fundamentally worthless until they are interconnected and assembled for functionality (Henry, 2013). Proponents of this thinking believe that the traditional old way is insufficient for the current dynamic world, where there are numerous and myriad interactions between the parts of a system, creating the reality of a situation.

In systems thinking, interdependences; relations, openness, and inter-connectedness are features that characterize the entire biosphere, including humankind. Accidents, epidemics, disease, wars etc. are an indictment that humans have not always been able to grasp systems thinking (Mulej, et al., 2004). Mulej et al., further stated that networking, interaction, interplay; whole, holism, big picture; synergy, system, synthesis; complexity; attractors and emergence are all notions that are proposed for measuring or identifying systems. Organizations may be thought of as complex systems, with varying degrees of process flexibility and varying feedback loops (Cusins, 1994). Cusins further argued that while there are differences between service and production organizations in systems terms, there are also differences in systems terms between the various functions in an organization.

Systems thinking, especially based on group modeling projects with computer simulations, has a high potential for supporting strategizing. However, instituting it in the organization on a broad base is neither easy nor cheap. Strategy competence is a source of sustainable competitive advantage located in the firm, thus research investigating strategizing and systems thinking must be done not only on organizations but also in organizations (Zahn, 2016). Milligan (2016) simplified system thinking and discussed it as the examination of the interactions of the parts in a system, leading to seeing larger patterns emerge. By seeing the patterns, individuals can begin to understand how the system works. Patterns beneficial to the organization are reinforced while eliminating detrimental patterns.

The essence of systems thinking is to focus on the whole. The parts are no longer the primary focus. The parts are essential, but what is more important is the interrelationship between the parts as they work together to fulfill the purpose of the whole system. According to Innovation Tools (2016), systems thinking is a results and outcome-oriented approach of thinking that is very different from the traditional piecemeal and fragmented approach of thinking. The traditional approach involves analysis as people continually break things apart, to look at the pieces and lose whatever sight they had of the whole picture. Innovation Tools further observed that that traditional process, known as analytical thinking, makes the parts primary and the whole secondary. In systems thinking, the whole is primary and the parts, secondary. This is not only a holistic and strategic way of viewing an organization; it can transform the way people interact.

Systems thinking therefore emphasizes the need to consider all the pieces; that connections are as important as differences; and how, when what we are considering is in fact a system, the whole ends up being greater than the sum of its parts (Johnston, 2016). This form of thinking is a major departure from the old way of business decision-making in which managers would break the system into parts and analyze the parts separately (Milligan, 2016). Milligan asserted that supporters of systems thinking believe that the old way of thinking is inadequate for our dynamic world, where there are numerous interactions between the parts of a system, creating the reality of a situation.

The key to making a competence lead to competitive advantage is to understand where it best fits in the organization and to understand where it will have the biggest impact. Systems thinking does this by providing a methodology and tools for constructing maps of systems and determining the points at which change can have the greatest impact on an organization’s performance (Aronson, 2001). For example, the innovation system approach is holistic and interdisciplinary and has the potential to encompass all the determinants of innovation. It differs from earlier analytical approaches in assuming that innovation relies primarily on interactions between institutions and people (Landry & Amara, 1998). This is because systems thinking acknowledges that differentiation through innovation is a collective undertaking where the organization interacts with both the internal and external environment in an iterative process in pursuit of competitive advantage (Manly, 2001).

3.0 METHODOLOGY

The study was based on positivism as it relied on experimental and non-manipulative methods. The study used the quantitative approach as the research was independent of what is observed, seeking to realize objectivity as far much possible. Both census approach and proportionate stratified probability sampling were used for appropriate presentation of the target population. The data was collected from employees of 19 petroleum

companies that were listed by the Petroleum Institute of East Africa (PIEA) and that had a market share of 1% and above. The target population was 1,585 employees of whom 111 belonged to senior management and 1,474 belonged to various administrative non-senior positions. The study carried out a census on senior management and utilized Yamane (1967) random sampling on the remaining 1,474 employees. Information was collected by way of questionnaires.

The research targeted to collect data from a sample of 425 top management and employees of 19 Oil Marketing Companies (OMC) with a regional 1% market share and above as captured by the Petroleum Institute of East Africa (PIEA). However, the study did not achieve a response of 100% as there was some non-response incidences Therefore, out of the 425 targeted managers and employees, 368 gave adequate information through answering the questionnaires completely and returned the questionnaires accordingly. However, 57 respondents did not give response to the study making a non-response of 13%. Thus, the study realized a response rate of 87%.

4.0 FINDINGS

The study was guided by the hypothesis:

$H_{0:}$ Systems thinking has no significant relationship with competitive advantage

H_1: Systems thinking has a significant relationship with competitive advantage

The analysis was necessary to inform the researcher whether to accept or reject the null hypothesis.

4.1 Factor Analysis Results on Systems Thinking

Factor analysis was used to reduce the items of systems thinking. Factor analysis results for systems thinking showed that KMO had a value of 0.197 and Bartlett's test, $x^2(11, N = 368) = 9331.250$, $p = .000$. The results are presented in Table 1.

Table 1: KMO and Bartlett's Sphericity test for Systems Thinking

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.197
Bartlett's Test of Sphericity	Approx. Chi-Square	9331.250
	df	11
	Sig.	.000

The study findings presented in Table 2 give the Eigen values for the factors under systems thinking. According to the findings, the first factor accounts for 43.051% of the variance, the second factor accounts for 25.908%, the third factor accounts for 14.780% of the variance while the fourth factor accounts for 9.672% of the variation. All the remaining factors were not found to be significant hence were dropped.

Table 2: Total Variance Explained for Systems Thinking

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.736	43.051	43.051	4.736	43.051	43.051
2	2.850	25.908	68.959	2.850	25.908	68.959
3	1.626	14.780	83.739	1.626	14.780	83.739
4	1.064	9.672	93.411	1.064	9.672	93.411
5	.338	3.072	96.483			
6	.194	1.759	98.242			
7	.118	1.076	99.318			
8	.070	.636	99.954			
9	.004	.033	99.987			
10	.001	.013	100.000			
11	006		100.000			

Extraction Method: Principal Component Analysis.

The study showed that among the eleven items used to measure systems thinking the items, "My organization enables people to get needed information at any time quickly and easily" had the highest factor loading of 0.912 in the first component. My organization measures the results of training had the highest factor loading in the second component with 0.837, as a professional, I solve a problem by approaching it from various angles had the highest factor loading in the third component with 0.534 while the results of my work are partly determined by efforts of staff members on my team had the highest factor loading of 0.817 in the fourth component. The results are presented in Table 3.

Table 3: Component Matrix for Systems Thinking

	Component			
	1	2	3	4
ST1	.076	-.501	-.007	.817
ST2	.912	-.115	.043	.143
ST3	.101	.749	.249	.526
ST4	.750	-.467	.460	-.044
ST5	.862	.333	-.163	.137
ST6	.649	.346	.502	-.243
ST7	.774	-.277	-.534	-.076
ST8	.796	-.247	-.520	-.083
ST9	.398	.837	.241	-.045
ST10	.756	-.451	.468	-.056
ST11	.444	.730	-.490	.028

Extraction Method: Principal Component Analysis.
a. 4 components extracted.

4.2 Descriptive Statistics for Systems Thinking

The study also sought to analyse the views of the respondents on systems thinking using a table of means and standard deviations. With the use of a Likert scale, data was collected rating the views on a scale of 1 to 5 where 1 represented strongly disagree whereas 5 represented strongly agree. The results from the collected responses were analyzed based on means and their standard deviations to show the variability of the individual responses from the overall mean of the responses of each aspect of systems thinking. The mean results were therefore given on a scale interval where a mean value of up to 1 was an indication of strongly disagree; 1.1 – 2.0 was disagree; 2.1 – 3.0 was neutral, 3.1 – 4.0 was agree and a mean value of 4.1 and above was an indication of strongly agree.

The findings obtained, shown in Table 4 indicate that the respondents strongly agreed with the statements; my organization measures the results of training, as an individual I am able to see process flow interrelationships, as a professional I have the skills to clearly distinguish the cause and effect of a problem, as a professional, I solve a problem by approaching it from various angles, the results of my work are partly determined by efforts of staff members on my team, the results of my work are partly determined by members outside my team, my organization enables people to get needed information at any time quickly and easily and my organization measures the results of the time and resources spent on training. The respondents agreed with the following statements; my organization encourages diverse perspectives, my organization makes lessons learnt available and my organization makes its lessons learned available to all employees.

Table 4: Mean and Standard Deviation for Systems Thinking

Systems Thinking	N	Mean	Std. Deviation
ST1	333	4.53	.687
ST2	368	4.48	.708
ST3	368	4.30	.588
ST4	333	4.21	.552
ST5	368	4.20	.570
ST6	368	4.19	1.174
ST7	368	4.17	.689
ST8	368	4.02	.767
ST9	368	3.99	.829
ST10	368	3.83	.865
ST11	368	3.74	.895

4.3 Correlation between Systems Thinking and Competitive Advantage

Correlation was used to test the strength of relationship between systems thinking and competitive advantage. The results for correlation analysis between systems thinking and competitive advantage indicated that the two variables were strongly correlated r (368) = .738, $p < .000$. The results are presented in Table 5.

Table 5: Correlation between Systems Thinking Index and Competitive Advantage

		Systems Thinking
Competitive Advantage	Pearson Correlation	.738**
	Sig. (2-tailed)	.000
	N	368

4.4 Regression Testing for Systems Thinking and Competitive Advantage

The study sought to establish the relationship between systems thinking and competitive advantage. The following hypothesis was therefore tested:

H_{5o}: Systems thinking has no significant relationship with competitive advantage
H_5: Systems thinking has a significant relationship with competitive advantage

The regression results show that systems thinking explained 54.4% significant proportion of variance in competitive advantage, R^2= .544, F (1, 368) = 37.190, p<0.01. The results are presented in Table 6.

Table 6: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.738[a]	.544	.543	.25253

a. Predictors: (Constant), Systems Thinking

The study found that systems thinking significantly predicted competitive advantage, β = .938, t (368) = 20.909, $p < .000$. These results indicated rejection of the null hypothesis. Thus, systems thinking has a significant relationship with competitive advantage. The results are presented in Table 7.

Table 7: Coefficients for Systems Thinking

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.404	.131		10.683	.000
	Systems Thinking	.660	.032	.738	20.909	.000

a. Dependent Variable: Competitive Advantage

The findings imply that for every one unit increase in systems thinking, competitive advantage increases by 0.660. The study also used the level of education to regress systems thinking and competitive advantage and found out that β = .961, t (368) = 22.891, p < .000. This implies that the level of education had a significant impact on the relationship between systems thinking and competitive advantage.

4.5 SEM Model Results

The study sought to determine the relationship between systems thinking and competitive advantage. The following hypothesis was tested.

H_4: Systems thinking contribute to an organization's competitive advantage

Figure 1 shows the path coefficients for the relationship between systems thinking and competitive advantage. The path coefficients were positive and significant at 0.05 level of significance except for inimitability. Path coefficient beta values were (β = 0.928, β = 0.347, β = -0.231, β = 0.920 and β = 0.974) for agility, barriers to entry, inimitability, innovation and mass customization respectively. The overall β coefficient was 0.853 implying that for every 1 unit increase in systems thinking, competitive advantage is predicted to increase by 0.853.

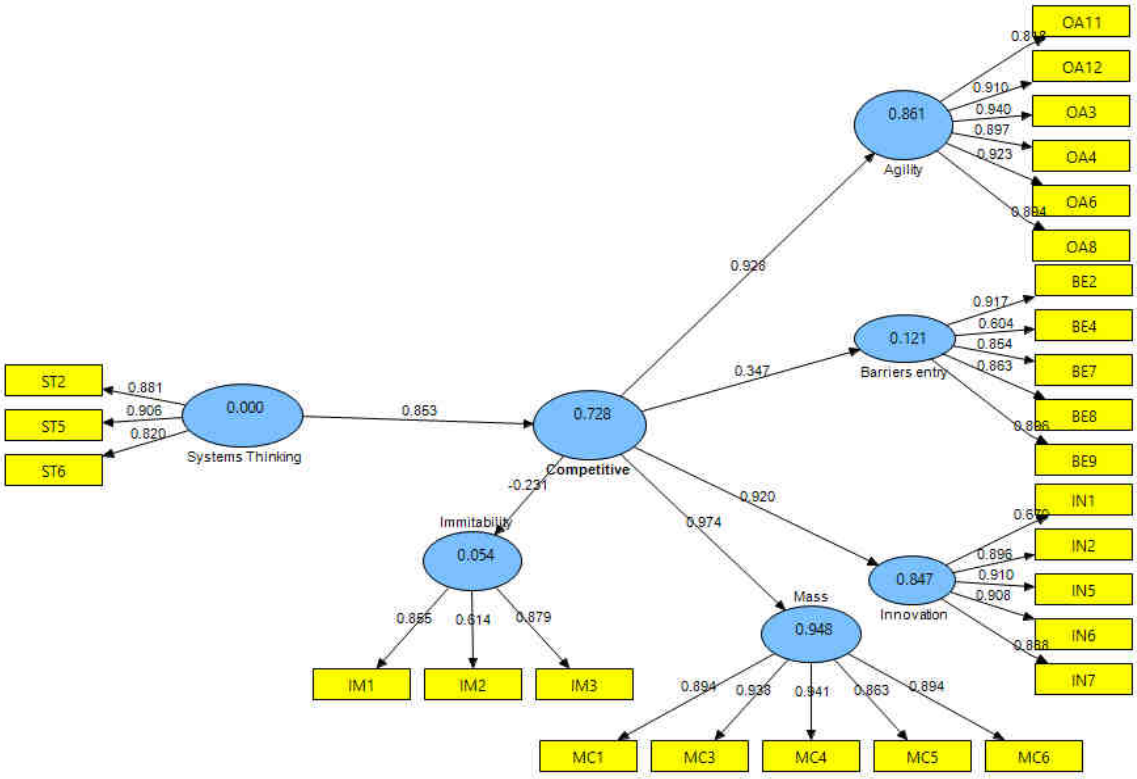

Figure 1: Path coefficients for the relationship between ST and CA

T values for systems thinking were obtained and the values obtained indicate that all the values were significant except for inimitability. Agility (t-value = 36.335, p-value = 0.000), barriers to entry (t-value = 4.303, p-value = 0.000), inimitability (t-value = 1.925, p-value = 0.055), innovation (t-value = 24.177, p-value = 0.000) and mass customization (t-value = 65.040, p-value = 0.000) showing that all values were significant at 0.05 level of significance except for inimitability. The overall T value was obtained as 27.682 with a p value of 0.000 showing a significant relationship. Figure 2 shows the T values for the relationship between systems thinking and competitive advantage.

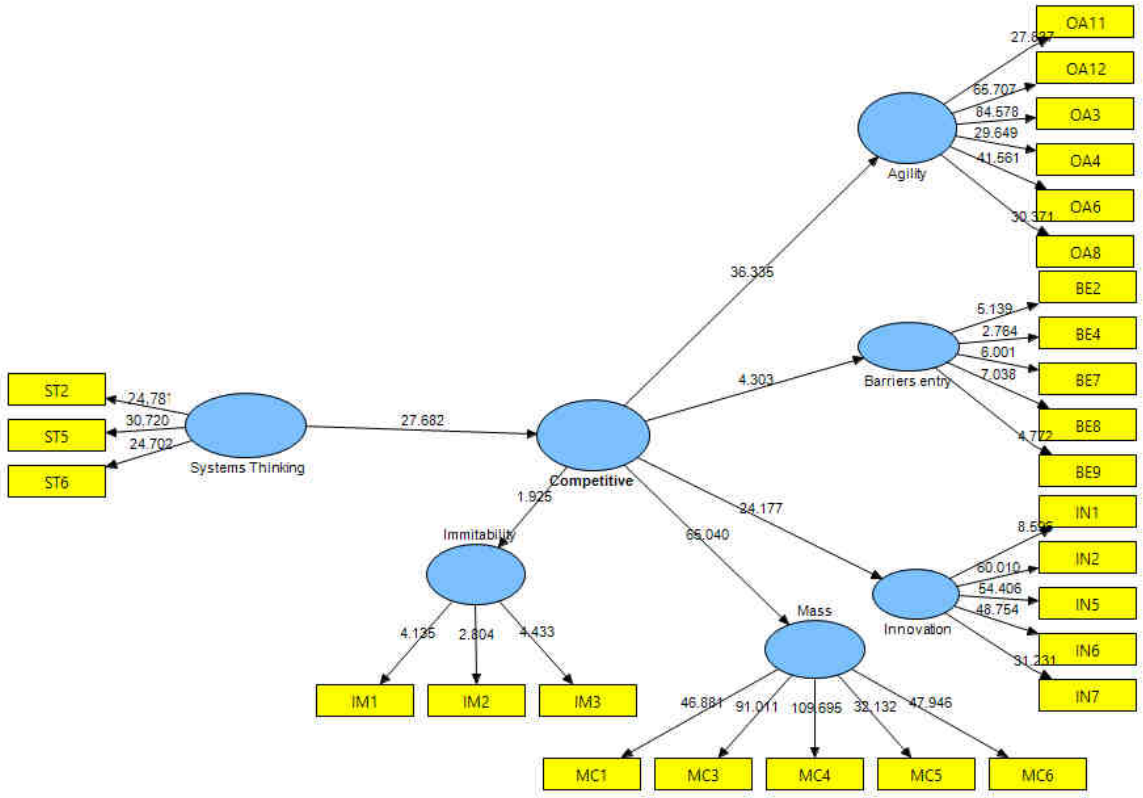

Figure 2: T values for the relationship between ST and CA

The overall path coefficients, standard errors, T statistics and p values for the relationship between systems thinking and competitive advantage was summarized in Table 8.

Table 8: Path coefficients for the relationship between ST and CA

Path	Path coefficients	Standard Error	T Statistics	P values
Competitive -> Agility	0.928	0.026	36.335	0.000
Competitive -> Barriers entry	0.347	0.081	4.303	0.000
Competitive -> Inimitability	-0.231	0.120	1.925	0.055
Competitive -> Innovation	0.920	0.038	24.177	0.000
Competitive -> Mass	0.974	0.015	65.040	0.000
Systems Thinking -> Competitive	**0.853**	**0.031**	**27.682**	**0.000**

The study also sought to determine the moderating effect of time on the relationship between systems thinking and competitive advantage. The path coefficients for the moderated model were positive and significant at 0.05 level of significance except for inimitability and time. Path coefficient beta values were ($\beta = 0.927$, $\beta = 0.350$, $\beta = -0.236$, $\beta = 0.921$, $\beta = 0.975$ and $\beta = -0.105$) for agility, barriers to entry, inimitability, innovation, mass customization and time respectively. The overall β coefficient was 0.872 implying that for every 1 unit increase in systems thinking, competitive advantage is predicted to increase by 0.872 when acting under the moderating effect of time. Figure 3 shows the path coefficients for the moderating effect of time on the relationship between systems thinking and competitive advantage.

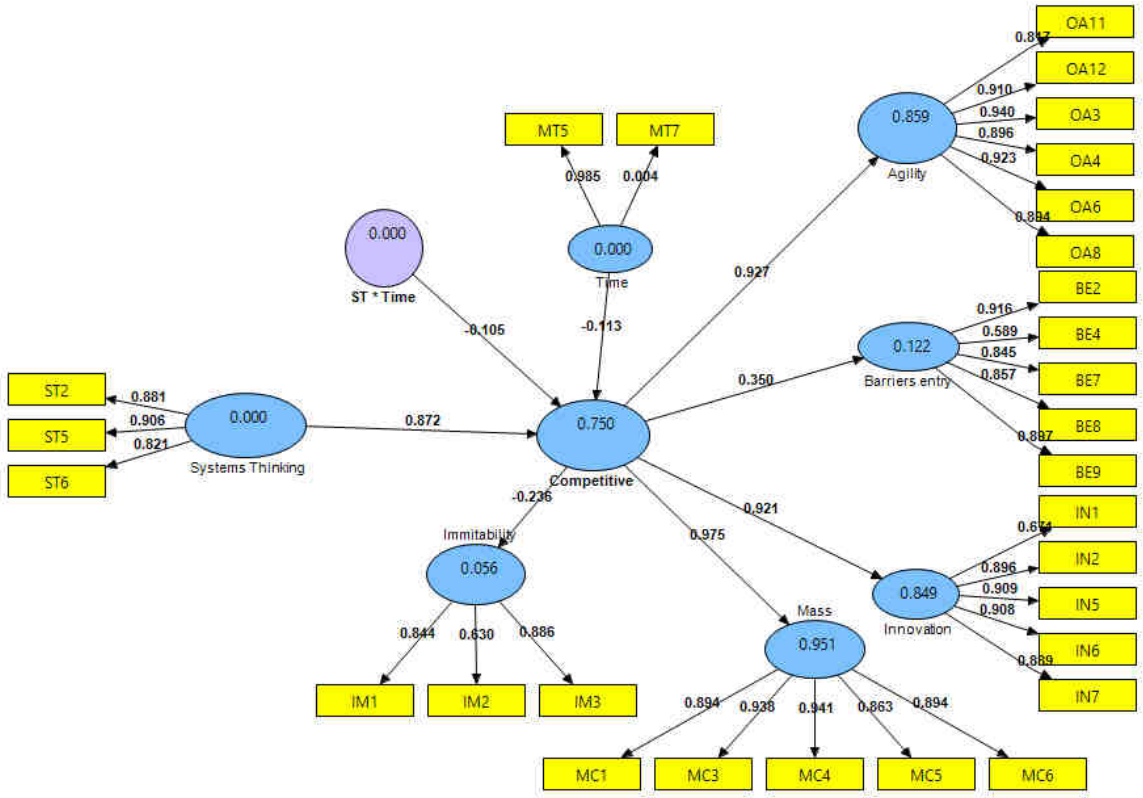

Figure 3: Path coefficients for the moderated model between ST and CA

T values for the moderated effect of time on the relationship between systems thinking and competitive advantage were obtained and the values obtained indicate that all the values were significant except for inimitability and time. Agility (t-value = 30.131, *p*-value = 0.000), barriers to entry (t-value = 4.375, *p*-value = 0.000), inimitability (t-value = 1.817, *p*-value = 0.070), innovation (t-value = 24.668, *p*-value = 0.000), mass customization (t-value = 72.989, *p*-value = 0.000) and time (t-value = 0.597, *p*-value = 0.158) were all significant at 0.05 level of significance except for inimitability and time. The overall T value was obtained as 15.179 with a p value of 0.000 showing a significant relationship. Figure 4 shows the T values for the relationship between systems thinking and competitive advantage under the moderating effect of time. The overall path coefficients, T statistics and p values for the moderated relationship between systems thinking and competitive advantage was summarized in Table 9.

Table 9: Path coefficients for the moderated path between ST and CA.

Path	Path coefficients	Standard Error	T Statistics	P values
Competitive -> Agility	0.927	0.031	30.131	0.000
Competitive -> Barrier Entry	0.350	0.080	4.375	0.000
Competitive -> Inimitability	-0.236	0.130	1.817	0.070
Competitive -> Innovation	0.921	0.037	24.668	0.000
Competitive -> Mass Customization	0.975	0.013	72.989	0.000
ST * Time -> Competitive	**-0.105**	**0.177**	**0.597**	**0.551**
Systems Thinking -> Competitive	**0.872**	**0.057**	**15.179**	**0.000**
Time -> Competitive	-0.113	0.094	1.205	0.229

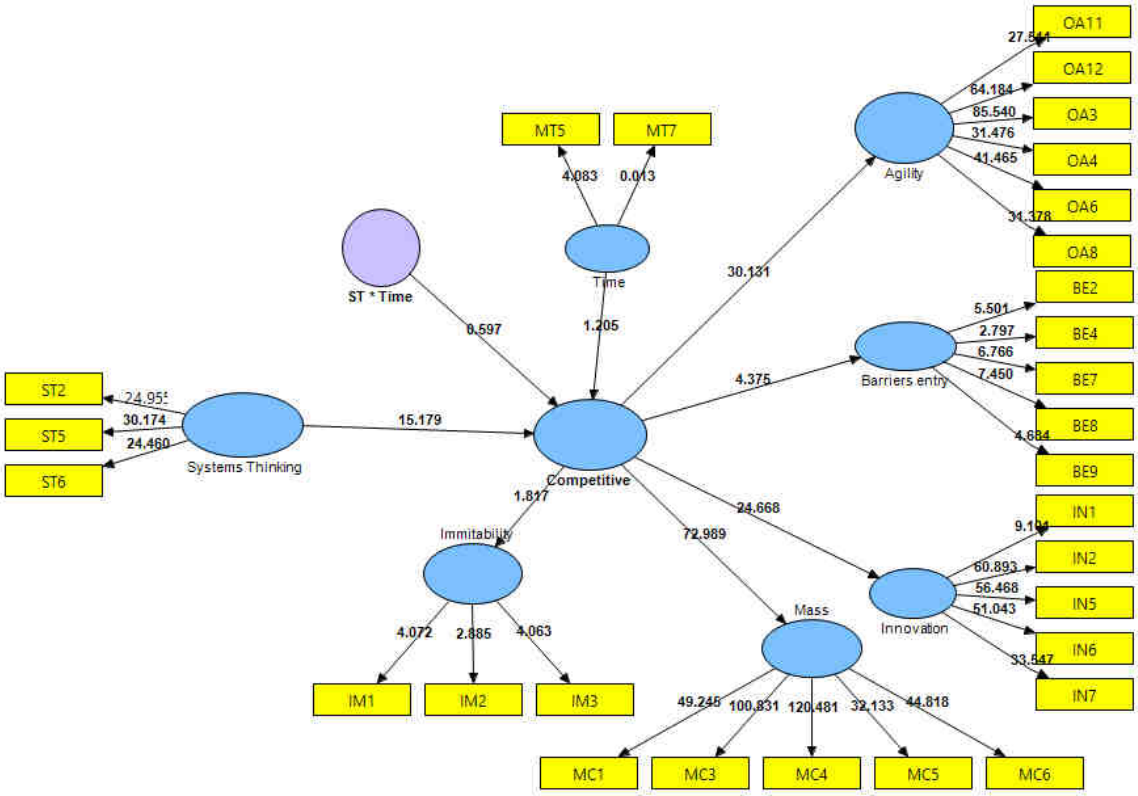

Figure 4: T values for the moderated path between ST and CA

5.0 DISCUSSION

The study sought to investigate the relationship between systems thinking and competitive advantage in the oil marketing companies in Kenya. The findings revealed that systems thinking and competitive advantage were strongly correlated. The findings are supported by the chi square results, which the study found that that there was a strong association between systems thinking and competitive advantage. The study also found out that the key to making a competence lead to competitive advantage is to understand where it best fits in the organization and to understand where it will have the biggest impact. Aronson (2001) and Manly (2001) agree with these findings where they found out that systems thinking acknowledges that differentiation through innovation is a collective undertaking where the organization interacts with both the internal and external environment in an iterative process in pursuit of competitive advantage.

In line with the present study findings, Saylor Academy (2016) observed that systems thinking has the capacity to encourage and institutionalize the natural ability of companies to evolve; not through small adaptations but through creative leaps. However, Schulman, Iyer and McManus (2016) has a different approach different from the present findings that strategic leaders of competitive organizations face the challenge of using their organization's open systems capabilities to respond to present and future environmental challenges. Therefore, the importance of systems thinking cannot be underscored. It is a powerful way of cognitive deduction processes that is being revitalized in several economic fields in order to discover new answers to current challenges and to support a deeper understanding of business. As part of this revitalization, systems thinking is applied to business model innovation, as the process of business model innovation requires more than simply filling a business model schematic, it is a challenging and complex management task. Milligan (2016) agrees that the value of

systems thinking is that is increases leaders' ability to observe, detect and analyze behavioural details in the activities of customers, suppliers, competitors and others to improve innovation and yield beneficial outcomes.

6.0 CONCLUSIONS

The study established that systems thinking significantly contributed to competitive advantage. The path coefficients for the relationship between systems thinking and competitive advantage were positive and significant at 0.05 level of significance except for inimitability. The study also concluded that for every 1 unit increase in systems thinking, competitive advantage is predicted to increase by 0.853 in the oil marketing companies.

Implications for practice and policy makers

OMCs registered in Kenya should consider tackling issues by establishing the root cause so as to get a comprehensive solution. Similarly, training employees to see complete processes and patterns that are relevant to the organization can be a big advantage. This can be done by instituting structured staff rotations in various departments and cross functional teams so that individuals can appreciate the different aspects of the operations.

Encouraging intra-communication across multi-level and multi-task teams will foster strengthening of professional interrelationships among employees. This will enable organizations create seamless flow of experiential and tacit knowledge. Furthermore, it will break down traditional and possibly restrictive mental models as individuals open up to sharing new ways of doing things in an iterative approach (deutero-learning). This will bring cognitive flexibility and possible much sought after organization agility.

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